

Dr Alan Walker  
Senior Policy Advisor  
The Royal Academy of Engineering  
3 Carlton House Terrace  
London SW1Y 5DG

12 January 2013

Dear Dr Walker,

### **Wind power: implications of large-scale deployment on the UK energy system**

I am writing to you in my role as Chairman of an Institute of Acoustics' working group currently producing Good Practice Guidance on wind turbine noise assessment. The response is based on my interpretation of the evidence gathered to date by the working group, both from a review of available literature and from responses to a consultation that the Institute of Acoustics ran in the summer of 2012. Given the timing of our work stream and your call for evidence deadline, I was unable to obtain a view on this response from the working group, and therefore the views expressed below do not necessarily reflect those of the Institute of Acoustics or the working group. The working group would however be keen to provide further evidence if this would be considered to be helpful to your group's review.

#### **Background**

The Institute of Acoustics (IOA) represents professionals involved in the management of environmental noise across the UK. Some of the members will be responding to this consultation in their own professional and local capacity. This response has been prepared by the Chairman of the Wind Turbine Noise Working Group, focusing on questions 11 and 13 in the call for evidence.

#### **Qu11. What are the main local environmental and social issues associated with the large-scale deployment of wind power?**

Noise impacts from wind turbine schemes have had a high profile in the press in recent years. Noise is seen as one of the main environmental barriers for wind farm developers to overcome on any scheme close to residential receptors, and large amounts of time are devoted in public inquiries to deal with the noise impacts of schemes. It would therefore be fair to say that noise is definitely one of the main local environmental issues associated with on-shore wind turbine schemes.

Current Government noise policy varies slightly around the UK, but the ETSU-R-97 document is widely endorsed to determine noise limits for wind farm developments. The limits that it recommends could result in some loss of amenity to local residents, and this is widely recognised as one of the problems for on-shore schemes as the local residents do not receive any compensation for the loss of amenity that they could suffer.

A lot of research has been carried out in recent years by manufacturers to understand the mechanisms of noise generation on wind turbines, and significant advancements have been made in reducing aerodynamic noise from the rotors. However, a more recent discovery of a noise that is reported to cause increased annoyance in audible wind farm noise is "Other" or "Excess" amplitude modulation, regularly described as a "thumping" noise.

From the evidence available to date, the majority of wind farms operate without causing significant noise complaints from the local residents. There is though unsubstantiated anecdotal evidence that annoyance from wind turbine noise is more widespread than currently reported. Experience of

Environmental Health Practitioners who routinely investigate the complaints is that the noise is rarely excessive, and in many cases noise is used as a proxy for other reasons why residents don't like the turbines.

The working group was assembled by the Institute of Acoustics at the request of the Department for Energy and Climate Change (DECC) to deal with inconsistencies in the way that the ETSU-R-97 methodology for wind turbine noise assessment has been applied and to provide good practice guidance. The group is not looking at the wider issues of the acceptability of the noise limits, although many respondents to the consultation believe that these should be revisited. This will be a matter for DECC once the good practice guide has been completed.

More information on the working group's activities and the discussion document released as a consultation in the summer of 2012 can be found at the following links:

<http://www.ioa.org.uk/about-us/news-article.asp?id=152>

<http://www.ioa.org.uk/about-us/news-article.asp?id=260>

<http://www.ioa.org.uk/about-us/news-article.asp?id=264>

**Qu13.What future research developments are you aware of that could significantly affect wind power in the future?**

The "other amplitude modulation" referred to above is the subject of research funded by industry body Renewables UK, and is due to be published this year. Other research projects are also continuing which are investigating whether there is a link between aspects of wind turbine noise and health effects. The results of this research has the potential to set in motion further research that could conclude that the current noise limits are too permissive, which could further restrict on-shore wind farm noise development.

If you would like any further exchange on the role of noise in the future expansion of wind developments, please do not hesitate to contact me.

Kind regards,

*Richard Perkins*